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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/518,766 | 07/06/2005 | Amir Averbuch | 27/243 | 2881 |
| 7590 Mark M. Friedman Polkinghorn 9003 Florin Way Upper Marlboro, MD 20772 | | | | |
| EXAMINER | | | | |
| VLAHOS, SOPHIA | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2611 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 08/26/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/518,766

Applicant(s)

AVERBUCH ET AL.

Examiner

SOPHIA VLAHOS

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 7 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/15/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This application is in condition for allowance except for the following formal matters:

Drawings

2. Figures 1 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: ¶0008 of patent application publication 2008/0063110 of the instant application 10/518766, reads: "According to the present invention, there is provided a method of transmitting data, including the steps of: (a) providing a set of at least 2^m nxn matrices that represent an extension of a fixed-point-free group, each matrix including n^2 matrix elements, where m is a positive integer and n is an

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integer greater than 1; (b) allocating each binary number between 0 and 2^m-1 to a representative one of the matrices..."

¶0028 mentions that "Table 1 of the specification lists an exemplary set of 2x2 matrix representations ...along with the associated bit allocations."

Table 1 (pages 21-25 of patent application publication), lists 2x2 matrices allocated for binary 0 through binary 249., i.e. shows a total of 250 2x2 matrices, but 250 does not satisfy the 2^m condition (if $m=8$ there should be $2^8=256$ matrices allocated to binary 0 through binary 255). Therefore, it appears that Table 1 is missing entries; and the specification should be corrected.

Claim Objections

4. Claims 7, 9 are objected to because of the following informalities:

Claim 7 recites: "; wherein said fixed-point-free group is a $G_{m,r}$ group". Here G , m , r are not defined.

Claim 9, recites an additional step (e). Step (e) is a receiving step, which contradicts the preamble of claim 1, which recites: "A method of transmitting data, comprising the steps of:"

Allowable Subject Matter

5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of the record fails to teach or suggest alone or in combination: A method of transmitting data, comprising the steps of (a) providing a set of at least

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2^m $n \times n$ matrices that represent an extension of a fixed-point-free group, each said matrix, including n^2 matrix elements, where m is a positive integer and n is an integer greater than 1; as recited in claim 1 and in combination with other steps of the claim.

Claims 1-9 are allowable over prior art.

The prior art of the record fails to teach or suggest alone or in combination:

A transmitter for transmitting data, comprising: (a) a coder for mapping the data into a set of 2^m $n \times n$ matrices obtained by providing a set of at least 2^m $n \times n$ matrices that represent an extension of a fixed-point-free group, each said matrix into which the data are mapped including n^2 matrix elements, m being a positive integer and n being an integer greater than 1; as recited in claim 11 and in combination with other elements of the claim.

Claims 11-12 are allowable over prior art.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hassibi et al. (U.S. 6,801,579) discloses a method and system for transmitting data, that provides a set of at least 2^m $n \times n$ matrices that represent fixed-point-free groups (but not extensions of), each said matrix, including n^2 matrix elements, where m is a positive integer and n is an integer greater than 1.

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Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/
Examiner, Art Unit 2611
8/25/2008

/Mohammad H Ghayour/
Supervisory Patent Examiner, Art Unit 2611